

Claims

What is claimed is:

1. An electronic energy meter that senses input voltage and current signals and processes the input voltage and current signals to generate measurements of multiple types of power comprising:

a processing system for selecting one of said multiple types of power and defining the same as the selected type of power and for generating a pulsed test signal representative of a magnitude of a measurement of said selected type of power for testing the operation of the meter; and

an optical communications port coupled to the processing system for transmitting the pulsed test signal from the meter and being operational to receive signals from sources external to the meter whereby pulsed test signals for multiple, different types of power can be transmitted over said optical communications port.

2. The meter of claim 1, wherein the multiple types of power include real power, reactive power, and apparent power and wherein the processing system selects one of the various types of power by selecting between real power, reactive power, and apparent power.

3. The meter of claim 2, wherein the processing system selects additional types of power and generates additional pulsed test signals, each of the additional pulsed test signals being related to one of the additional selected types of power and wherein the optical communications port transmits each additional pulsed test signal from the meter.

4. The meter of claim 1, wherein said multiple types of power are indicative of one of total power, power received, and power delivered and wherein the processing system selects one of the multiple types of power by selecting between total power, power received and power delivered.

5. The meter of claim 4, wherein the processing system selects additional types of power and generates additional pulsed test signals, each of the additional pulsed

test signals being related to one of the additional selected types of power and wherein the optical communications port transmits each additional pulsed test signal from the meter.

6. The meter of claim 1, wherein the pulsed test signal has a pulse rate substantially equal to the K_h value.

7. The meter of claim 1, wherein the pulsed test signal has a pulse rate substantially equal to a K_e value.

8. The meter of claim 1, wherein the processing system selects one of the K_h value or a K_e value as the pulse rate of the pulsed test signal to be transmitted.

9. The meter of claim 1, wherein the optical communications port is operative to receive a communications command from at least one source external to the meter and wherein the processing means selects the type of power based on information provided by the communications command.

10. The meter of claim 1, wherein the optical communications port receives communications while transmitting the pulsed test signal and transmits communications and the pulsed test signal, one-at-a-time, over the optical communications port.

11. An electronic energy meter that senses input voltage and current signals and processes the input voltage and current signals to generate measurements of various types of power including real power, reactive power, and apparent power and wherein said electronic energy meter comprises:

a communications interface for receiving a communications command identifying a selected one of the various types of power from a source external to the meter;

a processing system coupled to the communications interface for processing the communications command and generating a pulsed test signal representative of a magnitude of a measurement of the selected type of power; and

wherein the processing system transmits the pulsed test signal to a testing device external to the meter via said communications interface.

12. The meter of claim 11, wherein the communications command further identifies the selected type of power as being representative of total power, power received or power delivered and wherein the processing system comprises:

a first processing means for generating a first pulsed signal representative of real power received, a second pulsed signal representative of real power delivered, a third pulsed signal representative of one of reactive power received or apparent power received, and a fourth pulsed signal representative of one of reactive power delivered or apparent power delivered; and

a second processing means coupled to the first processing means and the communications interface for processing the communications command and routing at least one of the first pulsed signal, second pulsed signal, third pulsed signal and fourth pulsed signal to the communications interface based on the communications command for transmission as the pulsed test signal.

13. The meter of claim 12, wherein the second processing means combines the first pulsed signal and the second pulsed signal to form a pulsed test signal representative of total real power and combines the third pulsed signal and the fourth pulsed signal to form a pulsed test signal representative of one of total reactive power or total real power.

14. The meter of claim 11, wherein the communications command specifies a pulse rate of the pulsed signal to be transmitted as a Kh value or a Ke value, wherein the processing system comprises:

a first processing means for generating at least a first pulsed signal indicative of real power measured by the meter and a second pulsed signal indicative of one of reactive power measured by the meter and apparent power measured by the meter; and

a second processing means coupled to the first processing means and the communications interface for processing the communications command and generating

the pulsed test signal to be transmitted by the communications interface with a pulse rate equal to the K_h value or the K_e value specified by the communications command.

15. The meter of claim 11, wherein at least one additional communications command specifying a different one of the various types of power is received by the communications interface and wherein the processing system processes each said additional communications command and generates additional pulsed test signals based on the type of power specified by each additional communications command; and said communication interface transmitting each additional pulsed test signal to the testing device.

16. The meter of claim 11, wherein the communications interface is an optical communications port.